DOCUMENT RESUME

ED 326 394 SE 051 753

AUTHOR Mitchell, Judy; Rhyne, Pam
TITLE A Comparative Study of the Portrayal of Adults in Elementary Science Textbooks.
PUB DATE 89
NOTE 18p.; Paper presented at the Annual Meeting of the Southeastern Association of Teacher Educators (San Antonio, TX, November, 1989).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Adults; *Characterization; Elementary Education; *Elementary School Science; Ethnic Bias; Ethnic Groups; Females; Illustrations; Racial Bias; Racial Differences; Science Education; *Science Materials; Sex Bias; Sex Differences; Sex Role; *Social Bias; *Textbook Bias; Textbook Content; Textbook Research

ABSTRACT

The textbook is a predominant feature of most classrooms in the United States. Because the textbook is an important aspect of the educational experience, it is essential that the content of the texts be carefully scrutinized. The purpose of this study was to examine and compare the visual portrayal of racial, ethnic, and gender groups in elementary science textbooks published in the 1970s with those published in the 1980s. An instrument was developed to analyze the nature and type of activity engaged in by these groups as well as how often members of these groups were portrayed. Data were collected from three elementary science textbook series published in the 1970s and three from the 1980s. Although in some areas the portrayal of members of racial, ethnic, and gender groups improved to an extent, the results of this study would indicate that the portrayal of members of these groups is inaccurate and inadequate. Included are the methodology, results, and conclusions. (Author/KR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED326394

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Judy Mitchell
Pam Rhyne

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A Comparative Study of the Portrayal of Adults in Elementary Science Textbooks

Judy Mitchell

Pam Rhyne

A paper presented at the Southeastern Association of Teacher Educator's Annual Meeting. San Antonio, Texas, November, 1989

SE051753

Abstract

The textbook is a predominant feature of most classrooms in this country. Because the textbook is an important aspect of the educational experience, it is essential that the content of the texts be carefully scrutinized. The purpose of this study was to examine and compare the visual portrayal of racial, ethnic, and gender groups in elementary science textbooks published in the 1970s to those published in the 1980s. An instrument was developed to analyze the nature and type of activity engaged in by these groups as well as how often members of these groups were protrayed. Data was collected from three elementary science textbooks series published in the 1970s and three published in the 1980s. While in some areas, the portrayal of members of racial, ethnic, and gender groups improved somewhat the results of this study would indicate that the portrayal of members of these groups is inaccurate and inadequate.

One predominant feature of most public school classrooms is the textbook. A glimpse into virtually any classroom during any part of the school day will find teachers and students involved with a textbook. The pervasiveness of its use might suggest that the textbook has become the instructional program, the curriculum. Osborn et al (1985) note that "Estimates from a number of classroom studies (Dunkin, 1981; Ban & Dreebeen, 1983; Mason & Osborn, 1983) indicate that the contents of basal reading programs account for a great deal of how time is spent during reading in elementary schools" (p.9). Nor is this a recent phenomenon. Black (1967) notes that a typical student

> during his school year...will either commit to memory or attempt to absorb at least thirty-two thousand textbook pages,...During the school day itself seventy percent of your child's classroom time and ninety percent of the time he spends on his homework, will be centered around textbooks. (p.3)

While schools and teachers may be criticized for such heavy reliance on the textbook, the fact remains it is used extensively. It seems clear then that when examining what is taught and what is learned in the classroom, the textbook becomes one aspect of the educational experience which must be carefully scrutinized. In fact, increasing attention has been given to the textbook during the last decade. The concerns raised by a variety of special interest groups regarding specific content found in textbooks, most notably science and history texts, has

been the most publicized. The "dummying down" of textbooks to enable those with lesser reading abilities to read and understand the text has been given attention in the last five years or so. The quality of the presentation of information has also been of concern. Tyson-Bernstein (1988) makes a strong argument for more involvement of scholars in textbook writing for elementary and secondary students. She notes the need for "academics who have a talent for synthesis, an ability to write with grace and simplicity, and a passion to share a tempting vision of their discipline with beginners" (p.198).

One issue that has been a concern for many people for at least two decades is the adequate and accurate representation of racial, ethnic and gender groups in the American textbook (Black, 1967; Costo, 1970; Klein, 1985; Sadker & Sadker, 1989). Various methods of analyzing content have been used to determine the representation of these groups particularly in terms of the written text. However, more limited attention has been given to the graphic features of textbooks. Given the current technology which enables the inclusion of striking photographs and beautifully illustrated features in virtually all textbooks and the "visual nature" of the society, the visuals in textbooks often become the dominating feature of a given textbook page and are important. Considering the color and excitement often conveyed in the graphics found in textbooks, the notion that "a picture is worth a thousand words" may be more true today than ever before.

The importance of the visual is readily seen when the student opens his/her textbook the first time. Initially, it is the pictures the student seeks out and upon which s/he comments. The student who struggles with reading frequently relies on the visuals for information. Opinions are formed, meaning inferred and value judgments made primarily based on the visual. As Edgerton (1969) notes "...research shows that pictures are far more effective than words covering the same subjects and much more economical of space" (p.285).

Just as pictures serve as one primary source for examining values, interests, and problems of earlier societies, pictures and illustrations in current texts serve as indicators of the values, interests and concerns of present-day society. For a student using the text, the pictures and illustrations may well serve as guidelines for what is viewed as appropriate and valued; a way of beginning to determine the norms of society. While it may seem obvious that the pictures and illustrations found in a textbook have an immediate and longlasting impact on the reader, careful examination of these features to determine how racial, ethnic and gender groups are portrayed has been somewhat limited.

The purpose of this study was to examine and compare the visual portrayal of racial, ethnic and gender groups in elementary science textbooks published in the 1970s and in the 1980s. Science textbooks were chosen as this was part of a

larger study which focused on the teaching of science in the elementary school. The textbooks reviewed represent some of the best known publishers of textbooks.

Generally, studies which have focused on the representation of racial, ethnic and gender groups have been quantitative in nature. That is, counts are made of the number of times a member of a particular group is depicted. While this gives some baseline information about representation, it says nothing about the adequacy or accuracy of the portrayals. For example, if twenty percent of the males pictured are Black they are adequately represented in terms of number. However, if the vast majority of those pictures are of athletes or unskilled laborers, the portrayal is inaccurate and inadequate. It seems obvious, then, that an analysis of pictures and illustrations in textbooks must consider not only the number of times a group is depicted, but the nature of the depiction as well.

A second purpose of this study was to develop an instrument for examining pictures and illustrations in textbooks which derived information about the numerical aspects of representation as well as the nature of the representation.

Methods

The instrument developed to analyze the graphic representation of gender, racial and ethnic groups in textbooks was designed to determine the following:

a. The representation of males and females

b. The representation of Whites, African-Americans, Hispanics, and Asians

c. The nature of the activity engaged in by each group--Were individuals active or passive participants?

d. The type of activity engaged in by each group--Were individuals engaged in life activities, learning activities, adult careers or occupations?

Life activities included the following specific categories of activities: home related activities, health and safety activities, leisure activities and personal grooming. Career categories included those related to health services, public services requiring a college degree, public services not requiring a college degree, occupations associated with land and water, blue collar occupations, occupations associated with the corporate world, technical occupations and scientists.

Several specific examples of illustrative jobs were included in each occupational category; e.g., under occupations related to land and water; farmers, fishermen etc. were listed. The major types of activities and categories within these types were selected because they broadly represented activities engaged in by adults or children. In addition, a field test of the data collection instrument using a textbook series not included in the study, indicated that these activities reflected typical pictures

or illustrations in the textbooks. The activities were then coded for easy reference. By using such a code, we were able to determine the nature and type of activity engaged in as well as the frequency of representation of gender, racial and ethnic groups. By knowing how these groups were depicted as well as how often they were depicted provided a broader, more accurate perspective of their portrayal of the aforementioned groups in textbooks. Because student perceptions will be formed not only in terms of frequency of presentation but in terms of the nature of the presentation as well, it is necessary to have the broader perspective.

Assistants were then trained in the use of the coding system. To ensure interrater reliability, a field test was done using a textbook series not included in the study. Interrater reliability was at 98%. Data was collected from three textbook series, grades 1-5, from the 1970s and three textbook series, grades 1-5, from the 1980s. When the data for each grade level in each series had been collected, totals were derived and the data summarized.

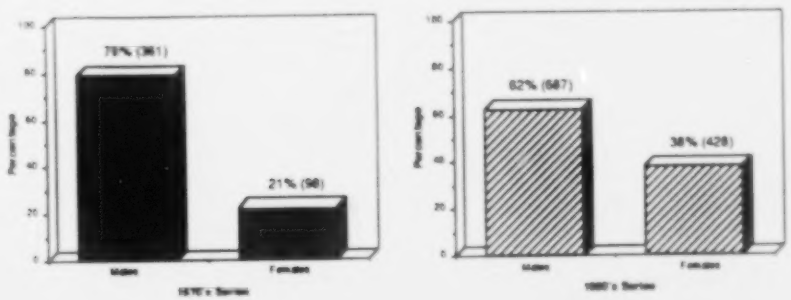
Results

While the study examined the portrayal of adults and children, for the purposes of this paper only the finding related to adults will be reported. The data that follow will compare the representation of males and females and Blacks with Whites

portrayed in textbooks published in the 1970s with textbooks published in the 1980s. Unfortunately the representation of Hispanics and Asians is so insignificant that comparison would be meaningless.

In general, there is a marked increase in the number of individuals depicted in photographs or illustrations in textbooks published in the 1980s. This reinforces the importance of examining how gender, racial and ethnic groups are portrayed. The comparison of frequency of representation of males and females further illustrates this point.

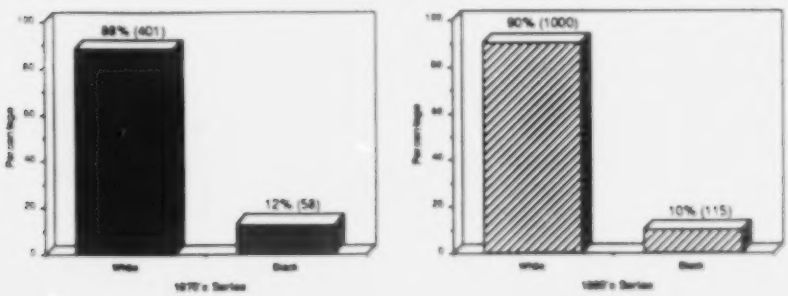
Comparison of Total Number
of Male and Female Adults



While the data indicates that the percentage of females represented has increased in the last decade, they remain underrepresented in textbooks.

When comparing the representation of Black and White adults in textbooks, the change that has occurred does not provide a more adequate representation of Blacks.

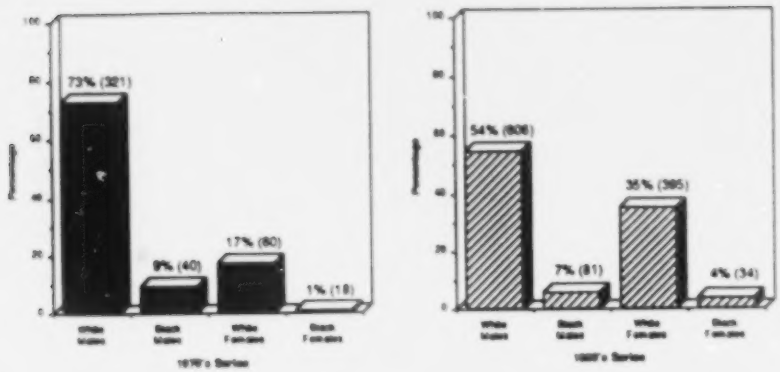
Comparison of Total Number of Black and White Adults



The percentage of African-American adults shown in textbooks has, in fact, decreased. The change in the percentage of representation is not in and of itself mathematically significant. However, the expectation that the percentage of Black adults depicted would have increased suggests that such a decrease is significant.

A comparison of the total number of adults by race and sex illustrates in more detail the differences in representation.

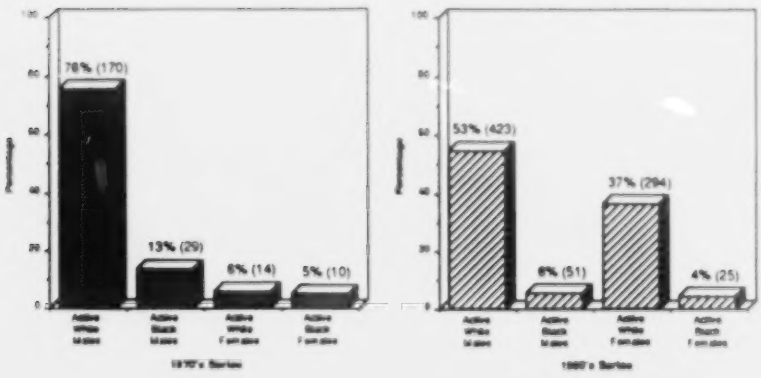
Comparison of Total Number of
Adults by Race and Sex



This comparison shows a significant decrease in the percentages of White males shown in textbooks and a significant increase in the number of White females shown in textbooks published in the 1980s. While the percentage of Black females shown in textbooks has quadrupled in the last decade, the percentage is still extremely low. Black males, while not well represented, are shown twice as often as Black females.

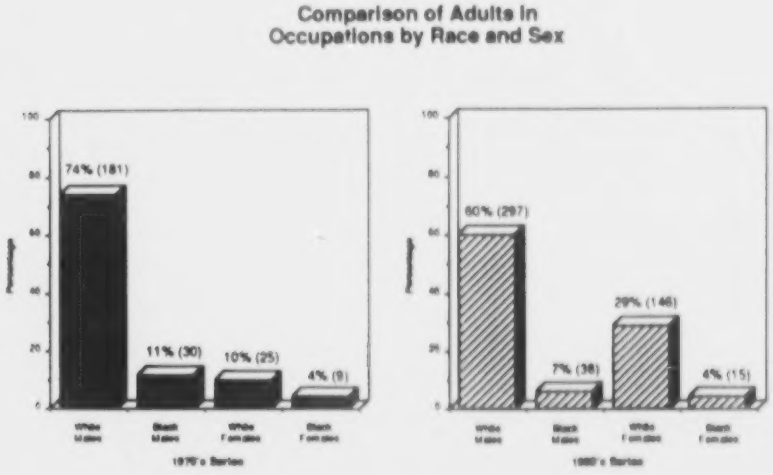
When comparing active males and females, Black and White, we see a similar pattern.

Comparison of Total Number of
Active Adults by Race and Sex



It is clear that the percentage of active White males shown decreases while the percentage of active White females shown increases in 1980's textbooks. However, the percentage of active African-American males and females depicted decreases in 1980's textbooks.

A similar comparison can be made in terms of the representation of Black and White males and Black and White females shown in occupations.



In textbooks published in the 1970s, most adults shown in occupations are White male. Few African-Americans and few women (Black or White) are shown. Black males are most often shown in blue collar jobs but in one series many are shown as scientists; i.e., pictured in a white lab coat. White males are primarily shown as scientists. Blue collar jobs and occupations associated with land and water rank second and third. Black females are in health or public service. White females are shown as scientists or in public service.

In textbooks published in the 1980s, most adults shown in occupations are still White males. However, there is a significant increase in the percentage of White females shown in occupations. The percentage of Blacks (male or female) shown in occupations remains low. This is especially true for Black females. The percentage of African-American males shown has decreased. While White males are depicted in a variety of occupations, an overwhelming number are depicted as scientists.

Black Males are shown in a variety of occupations; White females are shown primarily in fields related to the health sciences and technology; and, Black females are almost exclusively shown in the health sciences.

The comparison of how males and females are represented in home related activities in 1970s and 1980s textbooks further delineates some of the differences in representation.

In 1970, only males are shown in outdoor work, while both sexes participated equally in indoor work. Slightly more females are shown cooking; and, only males are involved in transportation of social activities. Only females are involved with child care.

While females are depicted more often in outdoor activities in the 1980s textbooks than had been true in 1970, they are still shown more often engaged in indoor activities. While males are depicted more often in indoor activities in the 1980s textbooks, they are still more often participating in outdoor activities. Males and females are both shown caring for plants and animals,

but only females are shown caring for children. More females are shown cooking, but four times as many males are shown shopping.

The representation of gender, racial, and ethnic groups remains fairly constant across the three textbooks series published in the 1970s and across the three textbook series published in the 1980s. Consequently, the finding presented as a total of all textbooks used in each time period is fairly representative of what would be found in each textbook series.

Some differences were found in representation of gender, racial and ethnic groups in different grade levels. For example, in the 1970s most active White females are shown in grade one and very few are depicted in textbooks used in the fourth, fifth and sixth grades. Active Black females are illustrated in only two grades. In the 1980s textbooks, the portrayal of active White females clearly declines in textbooks used with upper elementary students.

The findings are consistent in that: 1). males are pictured more often then females; 2). Whites are pictured much more frequently than any other racial or ethnic group; 3). racial or ethnic groups other than White or African-American are seldom shown; and, 4). women are pictured more often in traditional roles. While some areas of improvement are apparent in 1980's textbooks (most notably the increased representation of White females), women and minorities continue to be underrepresented in terms of frequency and adequacy of representation. Students using these textbooks continue to see females and racial and

ethnic minorities in stereotypic roles. Such portrayals do not adequately or accurately represent the diverse nature of our society or the personal and professional opportunities that exist in society. Consequently, what students perceive as expected, appropriate, or valued is narrow which limits their perspective.

References

Black, H. (1967). The American Schoolbook. New York: William Morrow.

Costo, R. (1970). Textbooks and the American Indian. San Francisco: Indian Historian Press.

Osborn, J. H., Jones, B., & Stein, M. The case for improving textbooks. Educational Leadership, 42, (7), 9-16.

Sadker, M., Sadker, D., & Steindam, S. Gender equity and educational reform. Educational Leadership, 46, (6), 44-47.

Tyson-Bernstein, H. The academy's contribution to the improvement of America's textbooks. Phi Delta Kappan 70, (3), 193-198.

Textbook References

Concepts in science. (1972). Harcourt brace & Jovanovich.

Ginn science program. (1973). Ginn.

Modern elementary science. (1971). Holt Rinehart & Winston.

Science. (1985). Harcourt Brace & Jovanovich.

Science. (1984). Scott Foresman.

Science. (1984). Silver Burdett.